IS 11010 (1984): Ziram Colloidal Suspension [FAD 1: Pesticides and Pesticides Residue Analysis]

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Indian Standard

SPECIFICATION FOR ZIRAM COLLOIDAL SUSPENSION

(First Reprint DECEMBER 1997)

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SPECIFICATION FOR ZIRAM COLLOIDAL SUSPENSION

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AMENDMENT NO 1 JUNE 1988

TO

IS:11010-1984 SPECIFICATION FOR **ZIRAM COLLOIDAL** SUSPENSION

(Page 7, clause A-3.1) - Substitute the following for the existing clause:

'A-3.1 Suspensibility, percent by mass

$$-\frac{\left(\begin{matrix}\text{Ziram content}\\ \text{in 100 ml}\end{matrix}\right)-\left(\begin{matrix}\text{Ziram content}\\ \text{in 1/10 portion}\end{matrix}\right)}{\text{Ziram content in 100 ml water}} \times 100 \times \frac{100}{90}$$

Note - It is advisable to check the, lowest graduation mark of the measuring cylinder as the calibration of this is not always exact.'

(Page , clause B-1.1, line 6) - Substitute '(0.1 M)' for '(0.1 N)'.

(APCDC 6)

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AHENDHENT NO 2 JUNE 1990
TO
IS 11010:1984 SPECIFICATION FOR
ZIRAM COLLOIDAL SUSPENSION

[Page 4, Table 1 , Sl No.(iii)] - Substitute the following for the existing Item:

iii)	Colloidal content, percent by mass, Min	12	B -

(FADC 1)

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AMENDMENT NO. 3 JULY 1994
TO
IS 11010 : 1984 SPECIFICATION FOR **ZIRAM** COLLOIDAL SUSPENSION

(*Page 5, clause* **4.1**) — Substitute the following for the existing:

'When freshly manufactured material in bulk quantity is offered for inspection, representative samples of the material shall be drawn and tested as prescribed in IS 10627 : 1983 within 90 days of its manufacture. When the material is offered for inspection after 90 days of its manufacture, sampling shall be done as prescribed in IS 10627 : 1983. However, the criteria for conformity of the material when tested, shall be the limits of tolerances, as applicable over the declared nominal value and given under clause 2.2.1 of the standard.'

(FAD 1)

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AMENDMENT NO. 4 SEPTEMBER 2008
TO
IS 11010 : 1984 SPECIFICATION FOR ZIRAM COLLOIDAL SUSPENSION

(*First cover, pages* 1 *and* 3, *second line, Title*) — Substitute '**ZIRAM SC**' *for* '**ZIRAM COLLOIDAL SUSPENSION**' and wherever occurs.

(FAD 1)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR ZIRAM COLLOIDAL SUSPENSION

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 August 1984, after the draft finalized by the Pest Control Sectional Committee had been approved by the Agricultural and Food Products Division Council and the Chemical Division Council.

0.2 Ziram colloidal suspension is used as a fungicide for the control of many diseases of agricultural crops.

0.3 Ziram colloidal suspension is generally formulated to contain 27 percent (*m/m*) of ziram.

0.4 In the preparation of this standard, due consideration has been given to the provisions of the *Insecticides Act*, 1968 and the Rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

0.5 For the purpose ofdeciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for ziram colloidal suspension.

2. REQUIREMENTS

2.1 Description — The material shall be in the form of off-white *to* creamish col'our viscous liquid.

2.1.1 Ziram, technical employed in the formulation of this material shall conform to IS : 3900-1975†.

*Rules for rounding off numerical values (*revised*).

†Specification for ziram, technical (*first revision*).

2.2 The material shall also comply with the requirements specified in Table 1.

TABLE 1 REQUIREMENTS FOR ZIRAM COLLOIDAL SUSPENSION

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			Appendix of This Standard	Appendix of IS : 3900-1975'
(1)	(2)	(3)	(4)	(5)
i)	Ziram content, percent by mass	Nominal value as declared on the container (*see* 2.2.1)	—	A
ii)	Suspensibility, percent by mass, *Min*	85	A	
iii)	Colloidal content, percent by mass, *Min*	15	B	
iv)	*p*H of suspension at 27°C	7.5 — 9·5	C	—

*Specification for ziram, technical (*first revision*).

2.2.1 *Ziram Content* — When determined by the method prescribed in Appendix A of IS : 3900-1975*, the observed ziram content, percent (*m/m*), of any of the samples shall not differ from the nominal value by more than the percent tolerance applied to the declared nominal value as given below:

Nominal Value, Percent	*Tolerence, Percent*	
up to 9	+10 − 5	of the nominal value
Above 9 and below 50	± 5	
50 and above	+ 5 − 3	

2.2.1.1 The actual value of the ziram content in the formulation shall be calculated to the second decimal place for rounding off to the first decimal place before applying the tolerance stipulated in 2.2.1.

2.2.1.2 The average content of all the samples taken shall not be less than the declared nominal content.

* Specification for ziram, technical (*first revision*).

3. PACKING AND MARKING

3.1 Packing — For packs of 5 litres, HDPE containers conforming to IS : 6312-1971* and for smaller packs up to 1 000 ml, HDPE containers conforming to IS : 7408-1978† shall be used. Containers shall be heat sealed with HDPE plugs. The containers shall finally be stoppered with HDPE screw caps. The containers shall also comply to the general requirements stipulated in 2 of IS : 8190 (Part 2)-1980‡.

3.2 **Marking** — The containers shall bear legibly and indelibly the following information and any other information, as is necessary under the *Insecticides Act* and Rules:

a) Name of the material;

b) Name of the manufacturer;

c) Date of manufacture;

d) Batch number,

e) Nett mass of the contents;

f) Nominal ziram content, percent (*m/m*), and

g) A cautionary notice worded as in the *Insecticides Act* and Rules.

3.2.1 The containers may also be marked with the Standard Mark.

3.2.2 The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

4. SAMPLING

4.1 Representative samples of the material shall be drawn as prescribed in IS : 10627-1983§.

5. TESTS

5.1 Tests shall be carried out by appropriate methods referred to in col 4 and 5 of Table 1.

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*Specification for polyethylene containers for transporting liquids (5 litres and above).

†Specification for blown polyolefin plastic container (up to 5 litres).

‡Specification for requirements for packing of pesticides: Part 2 Liquid pesticides (first *revision*).

§Specification for methods for sampling of pesticidal formulations.

5.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (see IS : 1070-1977*) shall be employed in tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the result of analysis.

APPENDIX A
[Table *I, Item* (ii)]

DETERMINATION OF SUSPENSIBILITY

A-O. GENERAL

A-O.1 For determination of suspensibility 1 percent solution (*m/v*) is kept standing for 15 minutes and then ziram content is determined in the lower 1/10th portion after sucking out the upper 9/10th portion.

A-l. REAGENTS

A-1.1 Standard EDTA Solution — 0·1 M.

A-1.2 Ammonia Solution — 20 percent (*m/m*).

A-1.3 **Erichrome Black** T — 4 percent alcoholic solution,

A-1.4 **Standard Hard Water** — Dissolve 0·304 0 g of calcium chloride anhydrous and 0·139 0 g of magnesium chloride hexahydrate in distilled water and make up to one litre in a volumetric flask.

A-2. PROCEDURE

A-2.1 Prepare a 1 percent (*m/v*) solution of ziram colloidal suspension by mixing 5 g in 500 ml standard hard water. Fill a 100 ml measuring cylinder (18-20 cm height) with this solution, homogenize by turning around the horizontal axis and leave standing for 15 minutes on a horizontal base. Then quickly suck out the upper 9/10th portion of the liquid so that no foam is left on, the walls. Dissolve the lower 1 /10th portion with a few ml of 20 percent ammonia solution after transferring into an Erlenmeyer flask. Dilute with 100 ml distilled water and immediately titrate with standard EDTA solution using Erichrome Black-T as an indicator. Also titrate 100 ml of the stock solution with EDTA as above. One ml of EDTA solution (0·1 M) will be equivalent to 30·6 mg of ziram.

*Specification for water for general laboratory use (*second revision*).

A-3. CALCULATION

A-3.1 Suspensibility, percent by mass

$$= \frac{(\text{Ziram content in 100 ml-Ziram content in 1/10 portion})}{\text{Ziram content in 100 ml water}} \times 100$$

NOTE — It is advisable to check the lowest graduation mark of the measuring cylinder as the calibration of this is not always exact.

APPENDIX B

[*Table* 1, Item (iii)]

DETERMINATION OF COLLOIDAL CONTENT

B-1. PROCEDURE

B-1.1 About 6 ml of the liquid suspension is diluted in a volumetric flask to 200 ml with distilled water. Take 25 ml of this solution and add to it 5 ml of 20 percent ammonia. A clean solution is obtained which is then diluted to 100 ml with distilled water. Add 0·4 ml of 4 percent alcoholic solution of Erichrome Black T and titrate with EDTA solution (0·1 N). The colour change is sudden from red to violet to blue.

B-1.2 Fill a centrifuge tube with a solution from the 200 ml volumetric flask and centrifuge for 10 minutes at 2 500 RPM. After 10 minutes switch off and let the centrifuge stop by itself. Pipette 25 ml of the centrifugal solution by dipping the pipette a few millilitres under the liquid surface. To this 25 ml solution, add about 1·5 ml of 20 percent ammonia solution (according to the quantity of suspended material) and dilute to 100 ml with distilled water. Add 0·4 ml of. 4 percent alcoholic solution of Erichrome Black T and titrate immediately with 0·1 M EDTA.

NOTE — 1 ml of 0·1 M EDTA solution corresponds to 30·6 mg of ziram content or 6'54 mg of zinc content.

E1.3 Calculation

Colloidal content, percent by mass =

$$\frac{\text{Ziram content of the centrifuged suspension}}{\text{Ziram content of the original suspension}} \times 100$$

APPENDIX C

[*Table* 1, Item (iv)]

DETERMINATION OF *p*H

C-1. APPARATUS

C-1.1 *p*H Meter

C-2. PROCEDURE

C-2.1 Measure the *p*H of the suspension at **27°C** using any suitable *p*H meter.

(Continued from page 2)

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